

# Clinical outcome of 162 patients with paraclinoid aneurysms treated with advanced microsurgical clipping technique.

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## Introduction

The trend is to treat paraclinoid aneurysms with endovascular therapy in spite of advances in microsurgical technique that can achieve more durable treatment with lower rate of visual loss and regrowth.

## Methods

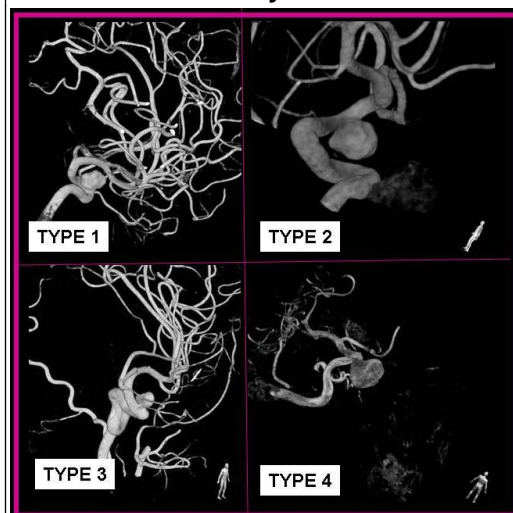
We present the clinical data and outcome of microsurgical treatment of 162 patients with different types of paraclinoid aneurysms. All patients were treated with a pretemporal predominantly extradural and extra-arachnoidal approach by senior author (A.F.K).

## Results

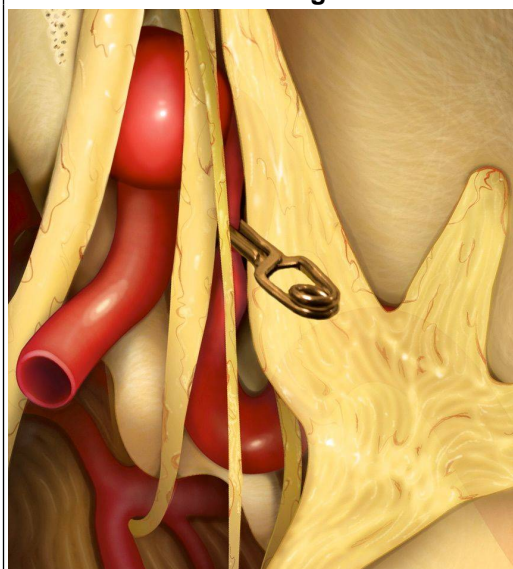
There were 143F\19M (median age=54 y). Type 1 (superior true ophthalmic) = 57%; Type 2 (ventral or inferior) =25%; Type 3 (lateral intracranial) = 11%. Type 4 (medial=superior hypophyseal and carotid cave) =7%. 32% of aneurysms were giant and large in size. 48% were complex aneurysms. 22% of patients presented with ruptured aneurysms, and 6% from them had HHG V and 17% HHG IV. Perioperative mortality in ruptured aneurysm was 8.5% and in unruptured aneurysms was 0%. MRS (Modified Rankin scale) was 0-2 in 57% of ruptured aneurysm and 98% of unruptured aneurysm at discharge. On f-up at 6 mos to 1 y, MRS 0-2 was in 78% of ruptured and 99% in unruptured aneurysms. Residual aneurysms over all -1.5 % cases (2). 8 pt had decreased vision after surgery (5%), with re-exploration craniotomy in 6 of them.

Vision improved in 2mo-1 y in 88% (7 from 8 patients). Median days in hospital stay were 14 day for ruptured aneurysms and 3 days for unruptured aneurysms.

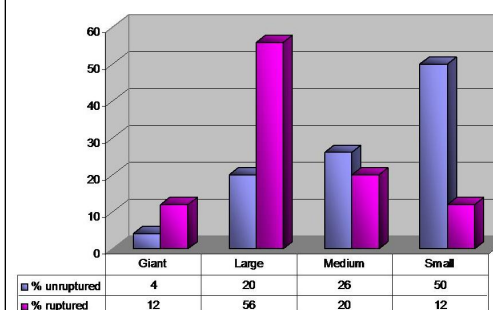
### Different types of paraclinoid aneurysms



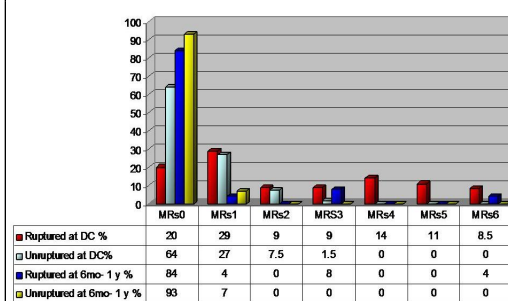
### Illustration of surgical view



### Size of aneurysms



### OUTCOME



## Conclusions

Microsurgical treatment of paraclinoid aneurysms is superior to endovascular therapy when performed by teams experienced with the normal and pathologic anatomy of the clinoidal and paraclinoidal region. It has superior visual outcome results as compared to endovascular therapy. It should continue to be the primary treatment option for aneurysms in this region.

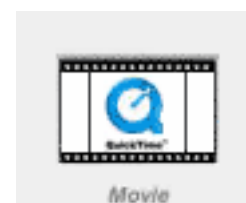
## Learning Objectives

1. Understand the anatomy of the clinoidal region. 2. Understand the pathologic anatomy of paraclinoid aneurysms. 3. Understand the



microsurgical approach to clipping of paraclinoid aneurysms 4. Understand the advantages of microsurgical clipping of paraclinoid aneurysms over endovascular therapy.

## Video. Superior (ophthalmic) type paraclinoid aneurysm.



## References

1. Kim LJ, Tariq F, Levitt M, et al: Multimodality Treatment of Complex Unruptured Cavernous and Paraclinoid Aneurysms. Neurosurgery 74: 2014